Use of Medical Services by Veterans With Mental Disorders

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This study examined timeliness, access, and intensity of outpatient medical service use in a national sample of veterans with comorbid medical disorders discharged from Veterans Affairs (VA) psychiatric units (N = 44,533). The factors that predicted decreased use of medical services included diagnosis of schizophrenia, posttraumatic stress disorder, and substance abuse. The factors associated with increased use of medical services included proximity to a VA outpatient clinic, receipt of VA compensation payments, discharge from a facility with greater resources devoted to medical-surgical care, and prompt outpatient mental health follow-up. Better integration of medical and psychiatric services may help improve access to medical care for the severely mentally ill.

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Recent studies have demonstrated that, depending on methods of detection and diagnosis, from 26% to 80% of patients with serious psychiatric illnesses also have significant medical illness and that in 13% to 53% of such cases, these illnesses remain undiagnosed.[1-3] Patients with combined medical-psychiatric illness have also been observed to have longer hospital stays than other psychiatric patients, presumably because of their extensive needs for diverse health care services.[4,5] Although the delivery of medical services to psychiatric patients has been identified as a major area in need of study,[6] and an area in which psychiatrists may need to play an increasing role,[7] there is little literature on factors influencing access to medical services for this population.

The high medical comorbidity associated with psychiatric illness would be expected to increase use of medical services for this population. However, these persons also have risk factors that may limit their access to medical care. Cognitive deficits and impaired judgment, social risk factors such as poverty and isolation, and medical providers' discomfort in treating patients with serious mental illness may all pose barriers to appropriate outpatient medical treatment.[8]

In addition, the relationship between medical service utilization and use of psychiatric services has important policy implications for the treatment of chronically mentally ill persons with concomitant medical disorders. The previous literature provides limited data as to whether psychiatric treatment increases or decreases use of medical services for this population. The "cost-offset" literature suggests that for medical patients with psychological distress, certain

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psychiatric interventions may result in decreased inpatient medical expenditures by reducing inappropriate use of medical services.[9-12] However, this literature has focused on general medical patients rather than on persons with serious mental illnesses. If the psychological and social disabilities associated with mental illness decrease access to medical care, then mental health service use might be expected to increase use of medical services by improving access.

To examine the relationship between psychiatric illness, psychiatric treatment, and other factors mediating use of medical services, this study uses an established health services framework that distinguishes health system and individual factors, and illustrates what factors influence use of health care services.[13] Health system factors include specific facility characteristics (e.g., size, specialty focus, orientation toward teaching and research) that may influence service delivery. Individual determinants of service use include 1) predisposing characteristics such as age, gender, or race, which affect general attitudes toward health service use; 2) illness factors, the immediate needs that prompt a person to seek health care; and 3) enabling characteristics, economic or entitlement characteristics that facilitate access to care. Since this study focuses on the use of medical services, mental illness is considered a predisposing factor that may influence use of services, rather than the primary impetus for service use.

This study, which uses data on veterans discharged from the Inpatient Department of Veterans Affairs (VA) psychiatric or substance abuse programs, attempts to examine the factors that influence the access, timeliness, and intensity of medical service use during the first 6 months after discharge. We explore three questions.

1. What is the relationship between psychiatric diagnosis and use of medical services? To address this question, we compare use of medical and surgical outpatient services among persons with different psychiatric and substance abuse disorders.
2. Do factors hypothesized to improve access to medical care—percentage of hospital resources devoted to medical-surgical care (a health system factor), geographic proximity to the hospital, and receipt of VA compensation payments (the latter two both enabling factors)—facilitate prompt medical follow-up?
3. What is the relationship between the use of psychiatric services and medical services for this chronically mentally ill population? Is there a "cost-offset" effect, or is use of mental health services positively associated with use of medical services?

METHODS

Sample

The sample includes all veterans discharged from VA inpatient psychiatry and substance abuse programs, nationwide, during a 6-month period (October 1, 1994–March 31, 1995) with a primary psychiatric or substance abuse disorder (ICD–9 codes 290–319) and a secondary medical disorder (ICD–9 codes 001–289, 320–999) (N = 44,533). The patients who were not discharged to the community (e.g., who were discharged to other hospitals or to nursing homes) are excluded.

Data Sources

The database was generated as part of a national performance-monitoring system for VA psychiatric and substance abuse treatment.[14] Data were derived from the VA's national inpatient discharge abstract file (the patient treatment file) and from a comprehensive outpatient workload file (the outpatient care file) documenting all VA outpatient-service delivery. Data on the size of each facility, on the emphasis on mental health as compared with medical-surgical programs, and on academic activities were derived from the "Cost Distribution Report," a national resource-accounting system.

Measures

System-facility factors predicted to influence service utilization included the following: 1) geographic region (U.S. Census Division) in which the veteran lived; 2) hospital size (as measured by number of full-time–equivalent employees); 3) academic emphasis (percentage of mental health funds allocated to research and education); and 4) degree to which the facility specializes in mental health care (measured by the percentage of all facility funds allocated to psychiatry and substance abuse treatment, as compared with medical-surgical treatment).

Predisposing characteristics included age, gender, race, marital status, and psychiatric or substance abuse diagnoses. Diagnoses selected for special attention in the analyses included 1) schizophrenia (ICD–9 code 295); 2) major affective and other psychotic disorders (ICD–9 codes 296–298); 3) alcohol abuse/dependence (ICD–9 codes 303, 305.0); 4) posttraumatic stress disorder (ICD–9 code 309.8); and 5) drug abuse/dependence (ICD–9 codes 304, 305.1–305.9). Analyses compared these diagnoses to a reference group with other nonpsychotic psychiatric disorders: the three most common disorders in this comparison group, in decreasing order of prevalence, were adjustment disorder, depressive disorder not otherwise specified, and dysthymia.

The enabling factors predicted to influence a veteran's access to medical care were 1) receipt of VA compensation payments (which also entails priority access to VA treatment); 2) proximity to a VA outpatient clinic (number of miles from the center region of the zip code of residence to the nearest VA outpatient clinic); and 3) receipt of psychiatric or substance abuse services within 30 days after discharge.

Illness leading patients to seek medical treatment was measured as a count of the total number of secondary medical diagnoses. In a recent review of methods of controlling for medical illness severity when analyzing administrative databases, this method was recommended as the one providing the best ability to predict outcomes with the fewest coding errors.[15]

Outcome Measures: Use of Medical Services

Because there are no standardized guidelines for timely follow-up after medical or surgical hospitalization in the medical literature, we used four complementary measures to represent access, timeliness, and intensity of outpatient medical services utilization.

1. The first measure is dichotomous variable reflecting receipt of any medical-surgical care during the first 6 months after discharge from inpatient psychiatric or substance abuse treatment (i.e., overall access to care).
2. The second measure is a dichotomous variable indicating receipt of any medical-surgical care during the first 30 days after the date of discharge from inpatient psychiatric or substance abuse treatment (i.e., timely access to care).[16]
3. The third measure is a continuous variable representing the number of days from discharge until the first medical-surgical visit among those with any medical or surgical visits (a continuous measure of timely access to care).
4. The final measure is a continuous variable reflecting the number of visits in the 6 months after discharge among those with any visits (i.e., intensity of medical services use).

Bivariate analysis of the interrelation of these four variables indicated that they were significantly but moderately correlated; correlation coefficients ranged from 0.18 to 0.46. Since these values indicated that the measures were not redundant,[17] analyses were included for all four outcomes.

Data Analysis

A correlation matrix was constructed that used all hypothesized independent and dependent variables. Bivariate analysis was used to exclude measures from multivariate analysis that were not significantly related to any measure of medical service use. Logistic regression

was used in the analysis of the 2 dichotomous variables "presence of at least 1 medical-surgical visit within 30 days" or "within 6 months." For veterans with at least one visit in the year following discharge, general linear methods were used to model the length of time from discharge until first medical visit and the total number of medical visits. The SAS statistical package was used for all analyses.

RESULTS

Characteristics of the Sample

Of 62,723 veterans discharged to the community from psychiatric or substance abuse beds between October 1, 1994, and March 31, 1995, 44,533 (71%) had at least 1 secondary medical diagnosis. This sample with comorbid medical and psychiatric diagnoses was used for all analyses in the study. Mean age for the sample was 47 (standard deviation [SD] = 11); 97% were male, 31% were African-American, 5% were Hispanic; 27% were married; and 44% received VA compensation benefits.

The primary psychiatric diagnoses in the sample were as follows: schizophrenia (15%), major affective/other psychotic disorder (13%), drug abuse/dependence (14%), alcohol abuse/dependence (33%), posttraumatic stress disorder (10%), and other psychiatric diagnosis (the reference group for multivariate analyses) (15%). As mentioned in the "Methods" section, the three most common disorders in this comparison group were adjustment disorder, depressive disorder not otherwise specified, and dysthymia.

The most common medical diagnoses were essential hypertension, diabetes mellitus, and chronic obstructive pulmonary disease. The diagnoses were similar to the most common diagnoses reported in national surveys as reasons for outpatient visits to internists.[18]

Follow-Up With Medical Services

Of those veterans discharged from psychiatric units with a secondary medical diagnosis, 44% had a medical visit within 30 days and 79% had a medical-surgical visit within 6 months. For the veterans discharged from psychiatric units who had any medical-surgical follow-up, the mean time from discharge until medical follow-up was 41 days (standardized deviation SD = 42.3, median = 25 days) and the average number of visits in the 6 months after discharge was 6.2 (SD = 7.4, median = 4 visits).

Factors Influencing Use of Services

All individual enabling and system factors predicted to improve access to care were positively associated with virtually all measures of timeliness, access, and intensity of outpatient medical services use. Receipt of VA compensation payments and proximity to a VA outpatient clinic were both positively associated with timeliness, access, and intensity of services use. (See Tables 1 and 2.) For instance, for each 10 miles closer that a veteran lived to a VA medical clinic, he or she was about 7% more likely to have an outpatient medical-surgical follow-up within 30 days of discharge. Discharge from a hospital that spent a higher proportion of funds or medical-surgical services also predicted access and intensity, and one of two measures of timeliness of outpatient medical-surgical use.

After adjusting for the factors described earlier, schizophrenia, posttraumatic stress disorder, and both alcohol abuse/dependence and drug abuse/dependence were negatively associated with all measures of timeliness, access, and intensity of outpatient medical services use. (See Tables 1 and 2.) For instance, after adjusting for the variables described earlier, the patients with a diagnosis of schizophrenia were 31% less likely to be seen in outpatient medical treatment within 30 days (Adjusted odds ratio [OR] = 0.69, 95% confidence interval [CI] = 0.58–0.80); took an average of 7.89 days (14%) longer to make their first medical visit; were 12% less likely to have a medical visit in the first 6 months after follow-up (Adjusted OR = 0.88: 95% CI = 0.79–0.97); and had an average of 1.3 (41%) fewer visits during the 6 months after discharge than the comparison

TABLE 1. Odds ratios (OR) and confidence intervals (CI) for discrete variables: logistic regression model of outpatient medical/surgical services utilization[a]

	Medical-Surgical Follow-up Within 6 Months After Discharge (OR ± 95%CI)	Medical-Surgical follow-up Within 30 Days After Discharge (OR ± 95%CI)
Individual: predisposing		
Psychiatric illness[b]		
Schizophrenia	$0.88 \pm 0.09^{***}$	$0.69 \pm 0.11^{***}$
Other psychotic/major affective	0.91 ± 0.09^{NS}	$0.89 \pm 0.09^{**}$
Drug abuse	$0.61 \pm 0.15^{***}$	$0.72 \pm 0.1^{***}$
Ethyl alcohol abuse	$0.69 \pm 0.12^{***}$	$0.77 \pm 0.09^{***}$
Posttraumatic stress disorder	$0.82 \pm 0.10^{***}$	$0.82 \pm 0.11^{***}$
Individual: enabling		
Receipt of VA compensation payments	$1.73 \pm 0.03^{***}$	$1.20 \pm 0.03^{***}$
Proximity to VA: change per 10 miles	$1.06 \pm 0.00^{***}$	$1.07 \pm 0.01^{***}$
Mental health follow-up within 30 days of discharge	$2.27 \pm 0.02^{***}$	$2.40 \pm 0.10^{***}$
System		
Percentage of hospital funds spent on medical and surgical care	$1.19 \pm 0.18^{*}$	$1.46 \pm 0.34^{***}$

$^{*}P < 0.05$; $^{**}P < 0.01$; $^{***}P < 0.001$; NS = not significant.

[a]Model adjusts for number of medical illnesses, age, gender, race, marital status, presence of service connection (i.e., priority access to VA services), distance to nearest medical-surgical clinic, and percentage of funds spent by that hospital on mental services.

[b]Reference group for analyses is all other psychiatric diagnoses; most common diagnoses in this group were adjustment disorder, depressive disorder not otherwise specified, and dysthymia.

group (See Tables 1–2). Other psychotic/major affective disorders were associated with reduced use on three out of the four measures of outpatient services use.

The veterans who had mental health or substance abuse outpatient follow-up within 30 days were more than 2 times more likely to have a medical follow-up visit within 30 days than those without such follow-up (Table 1: Adjusted OR = 2.40, 95% CI = 2.30–2.50). Mental health follow-up was also strongly associated with the other measures of access, timeliness, and intensity of outpatient medical services use.

DISCUSSION

This study is the first of which we are aware that examines factors predicting use of medical services in a national sample of patients with serious psychiatric illnesses. Receipt of medical services in a timely fashion should be a goal for any facility treating patients with mental illnesses and should be a part of any system-performance monitoring of those facilities. For this sample, 56% of the veterans with comorbid medical conditions had no medical follow-up within 30 days, and 21% had no medical follow-up within 6 months.

To provide a context for these findings, we obtained data about outpatient follow-up after VA medical or surgical hospitalization during the same time period (Table 3). Rates of outpatient medical follow-up within 30 days were 1.6 times higher for medical-surgical patients than for the patients discharged from psychiatric units, and the rates of follow-up within 6 months were 1.2 times higher for the medical-surgical patients than for those discharged from psychiatric units. Mean time until follow-up for psychiatric discharges was 1.75 times longer than the time until follow-up for the medical discharges, and the patients who were medical discharges had an average of 1.89 times more visits than the psychiatric discharges. While it was not possible to adjust for the greater severity of

TABLE 2. Means and standard errors for continuous variables: general linear model of outpatient medical-surgical services use[a]

	Days Until Medical-Surgical Follow-up Parameter Estimate (Standard Error)	Number of Medical-Surgical Visits Within 6 Months Parameter Estimate (Standard Error)
Multivariate model values		
Intercept for model	58.23	3.14
R^2 for Model	0.04	0.03
Individual: predisposing		
Psychiatric illness[b]		
Schizophrenia	7.89 (0.82)***	−1.31 (0.14)***
Other psychotic/major affective	2.49 (0.83)**	−0.47 (0.15)***
Drug abuse	3.31 (0.93)***	−0.75 (0.16)***
Ethyl alcohol abuse	4.01 (0.74)***	−0.83 (0.13)***
Posttraumatic stress disorder	5.51 (0.91)***	−0.75 (0.16)***
Individual: enabling		
Receipt of Veterans Affairs (VA) compensation payments	−0.77 (0.48)***	0.45 (0.08)***
Proximity to VA: change per 10 miles	−0.10 (0.01)***	0.26 (0.02)***
Mental health follow-up within 30 days of discharge		1.50 (0.08)***
System		
Percentage of hospital funds spent on medical and surgical care	1.46 (2.01) NS	−2.62 (± 0.35)***

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$; NS = not significant.

[a]Model adjusts for number of medical illnesses, age, gender, race, marital status, presence of service connection (i.e., priority access to VA services), distance to nearest medical-surgical clinic, and percentage of funds spent by that hospital on mental health services.

[b]Reference group for anaylses is all other psychiatric diagnoses; most common diagnoses in this group were adjustment disorder, depressive disorder not otherwise specified, and dysthymia.

TABLE 3. Medical follow-up after medical and psychiatric hospitalization

	Medical-Surgical Visit Within 30 Days *N* (%)	Number of Days Until First Medical-Surgical Visit Mean (STD)	Medical-Surgical Visit Within 6 Months *N* (%)	Number of Medical-Surgical Visits in 6 Months Mean (STD)
Psychiatric (n = 44,533)	19,595 (44%)	41.0 (42.30)	35,181 (79%)	6.1 (7.44)
Medical-surgical (n = 50,716)	36,557 (72%)	23.35 (40.10)	47,605 (93%)	13.81 (14.10)

Note: STD = standardized deviation.

medical illnesses among the medical-surgical inpatients, reduced access to medical services related to psychiatric illness may be one factor resulting in the large difference in timeliness and intensity of follow-up after discharge from the medical as compared with the psychiatric units.

The study's limitations are related to its use of a large administrative database with relatively limited clinical information.

First, we could not include detailed measures of medical illness severity. However, count of medical illnesses, adjusted for age and other

risk factors, provides a method of controlling for medical comorbidity that has been used in other health services studies.[19] A recent review has found this method to provide good explanatory ability in models predicting outcomes for studies using large administrative databases.[15]

Second, there was no information about use of medical or psychiatric services outside of VA. This potential weakness is mitigated by the fact that the average income for the sample is only $9,300 per year and that few veterans with chronic mental illness can afford private treatment outside of the VA system.

Third, we had no means of assessing how much medical care psychiatrists were performing. However, the majority of VA hospitals do not have psychiatrists delivering any primary medical care.[20] Furthermore, receiving mental health follow-up in the present study made a patient more, rather than less, likely to receive medical care, providing evidence that psychiatric visits were not substituting for medical visits but instead facilitating access to medical services.

The variation in service use among psychiatric diagnoses, and between discharges from medical and psychiatric units, is consistent with the observation in the clinical literature that some persons with mental illnesses may receive less medical care because of limitations in ability or unwillingness to communicate symptoms of illness or because of the fear or frustration such patients can provoke in medical providers.[21] It also may be a function of insufficient attention on the part of mental health providers to their clients' medical problems.

As expected, receipt of VA compensation payments, shorter distance from the nearest outpatient VA clinic, and discharge from a hospital with greater resources devoted to medical-surgical services were all associated with greater access, timeliness, and intensity of medical services use. These findings suggest that improving access to outpatient medical treatment through physical proximity, reduced administrative barriers to care, and greater integration of medical and mental health facilities may lower potential obstacles to receipt of medical care for patients with serious mental illness.

Timely follow-up with outpatient mental health treatment was strongly associated with greater access, timeliness, and intensity of outpatient medical service use. If, in fact, patients with severe psychiatric illness have reduced access to medical care, mental health treatment may facilitate those individuals' access to care by facilitating remission of psychiatric symptoms, building veterans' trust in the health care system, and improving their acceptance of medical services. Attention to veterans' medical needs may, in turn, improve mental health compliance by maintaining physical health and preserving veterans' connection to hospital clinics.

This study is the first that we know of to examine factors mediating access to medical services for patients with severe psychiatric illness. The results underscore the importance of initiatives to facilitate greater integration of medical and psychiatric care for this population, a process that some authors have suggested may also require improving the primary care medical skills of mental health providers.[7,22]

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